

Network

CLIL Lessons



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Extinction

- 1 How many extinct species can you think of? Do you know how to say them in English?
- 2 Read the text about extinction and write the questions in the correct spaces (1–4).

How do we know about species which no longer exist?
 What is extinction?
 What causes extinction?
 What do we mean by 'occasional catastrophes'?

Going, going, gone!

Life first **appeared** on the Earth 3 billion years ago. Of all the species that have lived on the Earth since then, only about one in a thousand is still living today. All the others are extinct.

(1) _____
 It is when a plant, an animal, or a way of life stops existing.

(2) _____
 Scientists are divided on this question. Some think extinction is a natural part of the evolution process and that all species will become extinct one day. Others think occasional catastrophes cause extinction.

(3) _____

- Environmental change due to factors such as the climate, urbanization, and **mining**. When habitat conditions change quickly, it is difficult for some species to **adapt** and **survive**. When a species can't evolve quickly enough, it becomes extinct.
- **Overexploitation** of resources can cause extinction, such as too much fishing in the sea or **hunting**.
- **Disease**
- Collision of comets or asteroids with the Earth can cause very **sudden** extinctions.



The Dodo

(4) _____
 Thanks to fossils! Fossils are the preserved **remains** of creatures that existed long ago. They can be millions of years old, and they can tell us a lot about extinct species.

3 Answer the questions.

- 1 What are the different scientific opinions on the causes of extinction?
- 2 What environmental factors can cause extinction?
- 3 Why do some species survive when habitat conditions change?
- 4 What can cause very sudden extinctions?
- 5 What are fossils?

MINI-PROJECT

Think of an animal that is in danger of becoming extinct. Do some research and write a short text about it. Answer these questions:

- Why is the animal at risk?
- What are the environmental factors affecting it?
- Can anything save the animal from becoming extinct?

Glossary: no longer – *non più*
 occasional – *occasionale, sporadico*
 appeared – *comparve*
 billion – *miliardi*
 mining – *estrazione dei minerali*
 adapt – *adattarsi*
 survive – *sopravvivere*
 overexploitation – *ipersfruttamento, depauperamento*
 hunting – *caccia*
 disease – *malattie*
 sudden – *improvvisa*
 remains – *resti*

European Contrasts

1 Match the words (1–7) to the definitions (a–g).

- | | |
|----------------|--|
| 1 ___ hill | a a piece of land surrounded by water |
| 2 ___ wood | b a high area of rock with a vertical side |
| 3 ___ cliff | c a very high part of the Earth's surface |
| 4 ___ mountain | d a small river |
| 5 ___ stream | e an area of land covered with trees |
| 6 ___ loch | f an area of land higher than the surrounding land |
| 7 ___ island | g a Scottish lake |

2 Read the text about two archipelagos. Where are the Arcipelago Toscano and the Shetland Islands?

3 Read the text again. True or false? Write T or F. Correct the false sentences.

- ___ Europe is bigger than the other four continents.
- ___ An archipelago is a group of islands.
- ___ Once Italy and Corsica were on the same land.
- ___ In the Shetland Islands only a few islands have people on them.
- ___ The sea around the Shetlands is lovely to swim in.

4 Answer the questions.

- Which is the oldest part of Elba?
- What is the name of the highest mountain?
- Why did Napoleon go to the island?
- What are the economic resources of the Shetland Islands?
- What is the most famous product of the Shetland Islands?

What do you think?

- Have you visited any places in Europe (including in Italy), that were very different from each other?
- What were the biggest differences you found?

MINI-PROJECT

Choose two more regions in very different parts of Europe and find some information about them. Write a short text comparing their populations, places of interest, economies and climate.

A TALE OF TWO ARCHIPELAGOS

Comparing the five continents of our planet, you can see that Europe is the smallest **by far**. However, if you travel from north to south, or from east to west, you will find enormous differences in **landscape**, climate and culture. Looking at two archipelagos, one off the west coast of central Italy and one off the north coast of Scotland, we can see an excellent example of this diversity: the Arcipelago Toscano and the Shetland Islands.

The Arcipelago Toscano is **made up of** six islands. The biggest and most important is the Isola d'Elba. Geologically, Elba is what remains of a long **stretch** of land which connected Italy and Corsica. The oldest part, 400 million years old, is in the east, where the hills are rich in **iron**, once the **main** resource of the island. The west is the most recent part, and includes the highest mountain, Monte Capanne. In the centre there is a **flat** area where we find the most important towns. The island has a **source** of fresh water named after Napoleone Bonaparte, **exiled** there in 1814. The white sandy beaches, the Mediterranean climate and the delicious local Aleatico wine are irresistible tourist attractions.

The Shetland archipelago is made up of more than a hundred islands, but only fifteen are inhabited. Very few trees grow here because the wind always **blows**. Hills covered in **heather overlook** rocky **crag**s, cliffs and **pebble beaches**, where you can see **seals** and **otters**. Fishing has been the main resource of the island for a long time, but the discovery of North Sea **oil** in the 1970s changed the economy. Tourism is also very important and more than half of the population depend on it for their jobs. The **breeding** of Shetland ponies, sheep farming, and the production and transformation of the world-famous Shetland **wool** are other economic activities. The weather is very cold in winter and cool in the summer: the beaches are fabulous, but don't expect to swim there because in the summer the water is only 14°C!



Shetland Islands



Arcipelago Toscano

Glossary: hill – collina cliff – scogliera
 stream – ruscello surrounded – circondato
 rock – roccia side – lato surface – superficie
 covered – ricoperta lake – lago
 comparing – confrontando by far – di gran lunga
 landscape – paesaggio made up of – composto di
 stretch – distesa iron – ferro main – principale
 flat – pianeggiante, basso source – sorgente
 exiled – esiliato blows – soffia
 heather – erica overlook – sovrastano
 crag – dirupo pebble beaches – spiagge di sassolini
 seal – foca otter – lontra oil – petrolio
 breeding – allevamento wool – lana

Measurements: metric vs. imperial

Most countries in the world use the **metric system of measurement**. In the past, the United Kingdom used the imperial system. British people still use some imperial measurements today, such as *miles* to express distance, and *pints* to express capacity.

1 Write the Italian translations of these units of measurement.

foot (ft) _____	pound (lb) _____
gram (g) _____	centimetre (cm) _____
kilogram (kg) _____	litre (l) _____
mile (m) _____	centilitre (cl) _____
kilometre (km) _____	pint (pt) _____
inch (in) _____	gallon (gal) _____
metre (m) _____	

2 Now write the units of measurement from Ex. 1 in the correct column.

	METRIC	IMPERIAL
LENGTH		
WEIGHT		
CAPACITY		

3 Which units would you use to describe the following?

Give each answer in both metric and imperial.

- the distance from Rome to Florence
- a bag of flour
- a bottle of milk
- the size of your computer screen
- the size of your bedroom
- your height

4 Read the conversion rules. True or false? Write T or F.

Correct the false sentences.

- ___ To convert from pounds to kilograms, we multiply by 2.2
- ___ To convert from litres to pints, we divide by 1.75
- ___ To convert from litres to gallons, we divide by 4.5
- ___ To convert from inches to centimetres, we multiply by 2.54
- ___ To convert from miles to kilometres, we divide by 1.6

5 Now do the conversion exercises.

- Rob is 5.5 feet tall. What is his height in metres? _____
- Susan's son weighs 30 kilograms. What is his weight in pounds? _____
- Helen runs 3.5 miles every day. How far does she run in kilometres? _____
- I drink 2 litres of water a day. How much do I drink in pints? _____
- We've got a 32-inch television screen. What is its size in centimetres? _____
- The car's fuel tank capacity is 56 litres. How many gallons can it hold? _____

50

80

DOING CONVERSIONS

1 km	=	0.625 mile
30.5 cm	=	1 foot
2.54 cm	=	1 inch
1 kg	=	2.2lb
4.5 litres	=	1 gallon
1 litre	=	1.75 pints

Example:

1 foot = 30.5 cm

To convert from feet to centimetres, we multiply by 30.5

e.g. 2 feet = $2 \times 30.5 = 61$ cm

To convert from centimetres to feet, we divide by 30.5

e.g. $885 \text{ cm} = 885 \div 30.5 = 29$ feet

MINI-PROJECT

Write 6 similar conversion exercises to those in Ex.5. Write the solutions. In pairs. Swap your conversions exercises and try to solve them.

Glossary: measurements – *misura*
 metric system of measurement – *sistema metrico decimale*
 length – *lunghezza* weight – *peso*
 flour – *farina* height – *altezza*
 fuel tank – *serbatoio del carburante*
 hold – *contenere*

Algebra: word problems

1 Word problems can be solved by changing them into equations.

'Key' words can help you understand which operation to use: addition (+), multiplication (×), subtraction (−) or division (÷).

- 1 Match the key words underlined in the table below to the type of operation they represent, and then write them as equations.
- 2 Now solve the equations in the table. How old is Jon?

	Key word = Operation	Equation
a The <u>sum</u> of Jon's age and 15 equals 29.	<i>sum = addition</i>	$x + 15 = 29$
b Three <u>times</u> Jon's age is 42.		
c The <u>difference</u> between Jon's age and the age of his younger brother, who is 10, is 4 years.		
d The <u>product</u> of Jon's age and 12 is 168.		
e Six <u>less than</u> Jon's age is 8.		
f 23 <u>more than</u> Jon's age equals 37.		

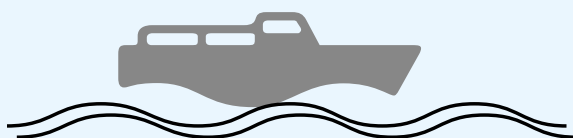
2 Solve these word problems using equations to help you.

- 1 The sum of two numbers is 41. The larger number is 1 more than 4 times the smaller number. What are these numbers?
- 2 The sum of two numbers is 4 times their difference. If one exceeds the other by 8, what are the numbers?

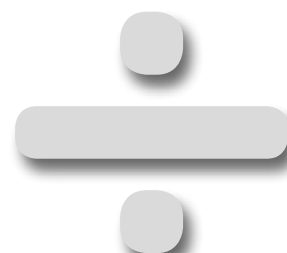
3 Now see if you can solve these word problems about time and distance.



- 1 At the same moment, two trains leave Edinburgh and London. They move towards each other with constant **speeds**. The train from Edinburgh is moving at a speed of 60 miles per hour, and the train from London is moving at a speed of 40 miles per hour. The distance between Edinburgh and London is 350 miles. How long after their **departure** will they meet?



- 2 A boat has a speed over water of 8 miles per hour. A river **flows downstream** at a speed of 2 miles per hour. How long will it take the boat to go from point A to point B **upstream**, and then back, if the distance from A to B is 24 miles?



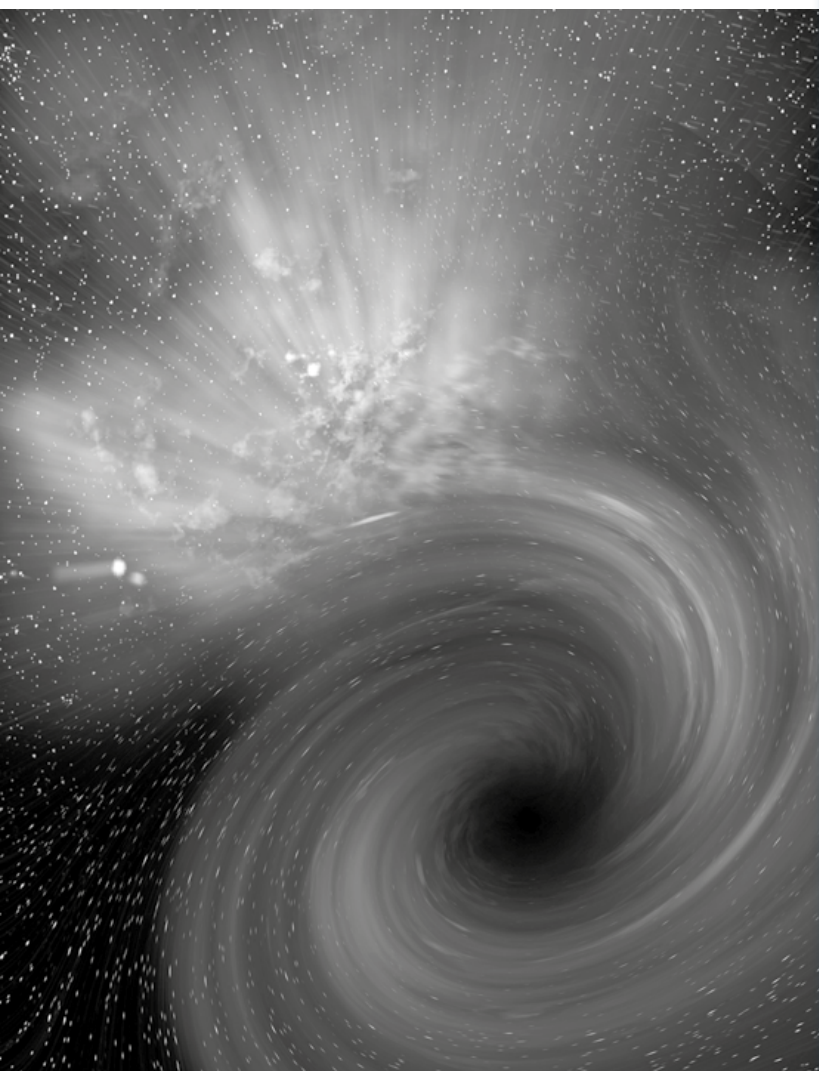
MINI-PROJECT

Write a similar word problem. In pairs. Swap your problems and try to solve them.

Glossary: solved – *risolti*
 equation – *equazione*
 sum – *somma* less – *meno*
 more – *più* speed – *velocità*
 departure – *partenza*
 flows – *scorre*
 downstream – *lungo la corrente*
 upstream – *controcorrente*

Black Holes

- 1 Do you know what a **black hole** is? Are black holes a reality or theory?



- 2 Read the text about black holes and write the paragraph headings (1–5) in the correct spaces (a–e).

- 3 Answer the questions.

- 1 Why can't light escape from a black hole?
- 2 What is the escape velocity for the Earth?
- 3 Who first thought about black holes?
- 4 Who developed the theory of gravity?
- 5 Why can't you see a black hole?

MINI-PROJECT

Sir Isaac Newton was a famous mathematician and physicist. Do some research on him and write a short text about his life and how he developed his theory of gravity. Include the following information:

- when/where he was born/died
- when/how he developed his theory of gravity
- other achievements in his life

1 The history of black hole theory

2 What is a black hole?

3 What is escape velocity?

4 How a black hole works

5 Do black holes really exist?

(a) _____

A black hole is an area in space that nothing can **escape** from, because gravity (the force that pulls objects in space towards each other) is so strong there. Not even light has enough escape velocity to get out of a black hole.

(b) _____

If you **throw** a ball into the air, the **harder** you throw it, the faster it travels and the higher it will go before coming back down. If you threw it hard enough, it could escape the Earth's gravity completely. The **speed** with which you need to throw the ball **in order for** this to happen is called the escape velocity, and for the Earth, it is about 11.2 km per second (40,000 km/h). The escape velocity depends on the planet's mass, not its size: small but very **heavy** objects have large escape velocities.

(c) _____

Scientists think that a black hole is a very small object with an enormous mass and an escape velocity that is faster than the speed of light. As nothing can go faster than light, nothing can escape the object's gravity. This means it is a black hole.

(d) _____

The British astronomer, John Michell, was the first person to think about the theory of black holes, in 1783. In 1796, the Frenchman, Pierre Laplace, proposed similar ideas to those of Michell. Using Newton's theory of gravity, Laplace calculated that if an object is **compressed** into a small enough **radius**, then the escape velocity of that object would be faster than the speed of light.

(e) _____

It is impossible to see black holes directly because no light can escape from them; they are black. But there are good reasons to think they exist.

Glossary: black hole – *buco nero*
 escape – *sfuggire, uscire fuori* throw – *lanciare*
 harder – *più forte* speed – *velocità*
 in order for – *affinché* heavy – *pesante*
 compressed – *compresso* radius – *raggio*

The Diary of Samuel Pepys

- 1 Do you **keep** a diary? How often do you write in it? What sort of things do you write? Do you **hide** it? Do you think your diary could be of historical interest in the future? In what way?
- 2 Between 1660 and 1669 Samuel Pepys (/pi:ps/) kept a diary. Read his biography. Where was he born? What was his diary about?

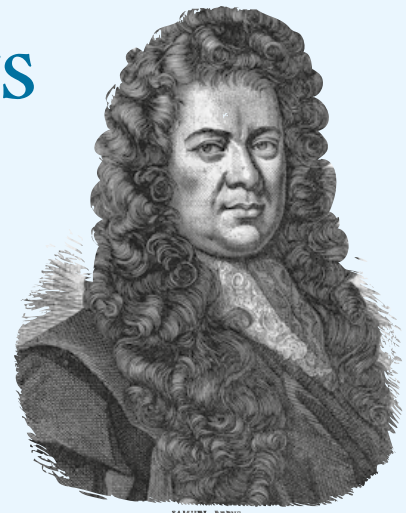
Samuel Pepys

Samuel Pepys was born in London in 1633. He was the son of a **tailor**, and the fifth of eleven children, but by the time he was seven, only three of his **siblings** had survived.

He studied at Magdalene College, Cambridge, and **graduated** in 1654. After university, he went to live in London with his father's cousin, Sir Edward Montagu, the 1st **Earl** of Sandwich.

Samuel Pepys first worked in London as a secretary to Sir Edward. He then became an administrator in the **navy**. Pepys rose to become Chief Secretary to the **Admiralty** under King James II. However, he is not famous for his work, but for the very detailed personal diary he kept during the years 1660–1669.

In some ways his diary was very ordinary – he recorded details of his daily life, work, and **leisure** activities. It was written in code, perhaps because he didn't want his wife to read it, but also because it was not **safe** to say, or write exactly what you felt about those in power. What is special about his diary are the fascinating eyewitness accounts of events in 17th century England, for example, the **Great Plague** in 1665, which killed thousands of people; and the Great Fire of London in 1666. It has become an important historical document about the **Restoration** period in England, when the monarchy under Charles II was restored after a period of republican rule under the military leader, Cromwell.



The last entry was recorded on 31st May 1669. Pepys was losing his **sight** and was not able to continue. He died in 1703.

In 1819 Pepys' diaries were discovered by Reverend John Smith, a student at Magdalene College, Cambridge, who **decoded** and published them. Pepys' diary is kept in the Pepys Library in Magdalene College, Cambridge.

3 Match the words from the text (1–5) to the definitions (a–e).

- | | |
|---------------------------|---|
| 1 ___ detailed | a a system of writing information so that most people can't read it |
| 2 ___ recorded | b descriptions of an event by someone who was there at the time |
| 3 ___ code | c with lots of facts and information |
| 4 ___ eyewitness accounts | d the section for one particular day in a diary |
| 5 ___ entry | e wrote down |

4 Answer the questions.

- 1 How many brothers and sisters did Pepys have?
- 2 When did Pepys keep his diary?
- 3 Name some historical events that Pepys wrote about in his diary.
- 4 What was the Restoration period in England?
- 5 Why did Pepys stop writing the diary?
- 6 Where is Pepys' diary now?

Glossary: keep – tenere

hide – nascondere tailor – sarto

siblings – fratelli

had survived – erano sopravvissuti

graduated – si laureò earl – conte

navy – marina Admiralty – Ammiragliato

leisure – tempo libero safe – prudente

plague – peste Restoration – Restaurazione

sight – vista decoded – decifrò

5 Read the entries A–D from Samuel Pepys' diary. Which refer to:

- 1 the Great Plague ____ / ____ 2 his daily life ____ 3 the Great Fire of London ____

A

1660 January 16th

... we went towards Westminster on foot, and at the Golden Lion, near Charing Cross, we went in and drank a pint of wine, and so **parted**; and **thence** home, where I found my wife and maid a-washing. I **staid up** till the bell-man came by with his **bell**, just under my window as I was writing of this very line, and cried, "Past one of the clock, and a cold, **frosty**, windy morning." I then went to bed and left my wife and the maid a-washing still.

B

1665 June 7th

This day, much against my **will**, I did in Drury Lane see two or three houses marked with a red cross upon the doors, and "Lord have mercy upon us" **write** there; which was a sad sight to me, being the first of the kind that, to my remembrance, I ever saw.

C

1665 August 31st

In the City died this week 7,496 and of them 6,102 of the plague. But it is feared that the true number of the dead this week is near 10,000; partly from the poor that cannot be taken notice of through the greatness of the number, and partly from the **Quakers** and others that will not have **nay** bell ring for them.

D

1666 September 2nd (Lord's day)

... Jane comes and tells me that she hears that above 300 houses have been **burned down** to-night by the fire we saw, and that it is now burning down all Fish-street, by London Bridge. So I made myself ready **presently**, and walked to the Tower, and there got up upon one of the high places, Sir J. Robinson's little son going up with me; and there I did see the houses at that end of the bridge all on fire, and an infinite great fire on this and the other side the end of the bridge ... So down, with my heart full of trouble, to the Lieutenant of the Tower, who tells me that it begun this morning in the King's baker's house in Pudding-lane, and that it **hath** burned St. Magnus's Church and most part of Fish-street already. So I down to the water-side, and there got a boat and through bridge, and there saw a **lamentable** fire. ... Everybody endeavouring to remove their **goods**, and flinging into the river or bringing them into **lighters** that **lay off**; poor people staying in their houses as long as till the very fire touched them, and then running into boats...

Glossary: parted = left – *partimmo* thence = then/from there – *poi, da lì* staid up = stayed up – *rimasi sveglio*
bell – *campana* frosty – *gelido* will – *volontà* write = written – *scritto* Quakers – *quaccheri* nay = [not] any – *nessun*
burned down = *distrutte* presently = quickly – *presto* hath = has lamentable = sad, terrible – *pietoso*
goods = possessions – *cose* lighters = small boats lay off = were nearby – *erano vicine*

6 Match the words from the diary entries A and D (1–6) to the definitions (a–d)

- 1 ____ maid 4 ____ endeavouring
2 ____ infinite 5 ____ flinging
3 ____ Lieutenant

- a throwing something in a careless way
b attempting to do something
c an officer of middle rank in the army or the navy
d a female servant in a house or a hotel
e without limits

7 Answer the questions.

- 1 What was the weather like that January morning?
2 What sign did people put on their door to show they had the plague?
3 How many people in London died of the plague during the week of 31st August 1665?
4 Where did Pepys go to watch the fire of London?
5 Where did the Great Fire of London start?
6 What did Londoners do to try and escape from the fire?

8 Read entry D again. Make a list of the events, and the emotions and reactions.

What do you think?

- 1 What historical events, or aspects of today's everyday life might people in the future find interesting if they found a diary, written now?

MINI-PROJECT

Do some research on the Internet to find out about either what happened after September 2nd 1666 in London or an event in your town's history. Imagine you were an eye-witness and write a diary entry.

John Keats

- 1 Who is your favourite poet? Why? Name some of his/her poems.
- 2 Read the first paragraph of the text, *The English Romantic Movement*. Name 6 English Romantic poets.
- 3 Read the next part of the text, *John Keats – His poetry*. What is special about it?
- 4 Read *John Keats – His life*, and complete the text using the words in the box.

masterpieces	stanzas	poetry
sonnet	pastime	

5 Answer the questions.

- 1 What made Keats different from his contemporaries?
- 2 Who had a great influence on his writing?
- 3 Name three of his poems.
- 4 Where is Keats buried?



The English Romantic Movement

The English Romantic Movement took place at the end of the 18th and the beginning of the 19th centuries. It was a reaction to the **Enlightenment** and the Industrial Revolution. In England, the most important Romantic poets were Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats.

John Keats – His poetry

Keats's poetry explores the ideas of beauty and truth and the **aesthetic** ideal. Through his poems, he illustrates the relationship between pleasure and **pain**, happiness and melancholy. His most famous poems are called Odes, in which the writer's private thoughts and feelings are expressed, and which usually **address** a person or an object. They are **remarkable** for their use of imagery and metaphor, as well as their style and structure.

John Keats – His life

John Keats was born in London in 1795, into a family in the **livery** business. This meant that Keats came from what would have been considered the 'common' people, **unlike** most poets and writers of this time. A popular boy at school, his friends remembered him as generous and **brave**. His father died when he was eight, and when his mother died of tuberculosis in 1810, Keats was taken out of school and became an **apprentice surgeon**, later studying at Guy's Hospital in London.

In 1813, after reading Edmund Spenser's *Faerie Queene*, an epic poem published in the 16th century and a major influence on the English Romantic Movement, Keats developed an interest in (1) _____. He wanted to become a poet, but his guardian saw writing poetry as a (2) _____ for the **wealthy** aristocracy, and encouraged him to continue his medical career. Keats did well in his medical studies, despite the fact that his notebooks show that he spent much of his time in lectures writing poems! In 1816, after seeing his first **operation**, he decided to concentrate on writing. His first work to be published was a (3) _____ – a poem of 14 lines, with 10 syllables in each line and a fixed rhyming **pattern**. It was called *To Solitude*.

In 1818, Keats travelled throughout England and Scotland, both with friends and alone. Later that year, his brother Tom became very ill and died of tuberculosis. It was while he was **nursing** Tom that Keats met Fanny Brawne. They fell in love after Tom's death, and in 1819 they **got engaged**. Keats admitted that he **had avoided** relationships with women before that because he was worried that the flame of romance would '**burn him up**.' On the contrary, it was at this time, between 1818 and 1820, that Keats wrote most of his (4) _____, including *The Eve of St Agnes*, a very long poem with forty-eight (5) _____, and *La Belle Dame Sans Merci*.

In 1820, Keats became very ill with tuberculosis. He went to Italy to try to **recover**, but died in Rome in February 1821, at the age of 25. He is buried in the Protestant cemetery in Testaccio in Rome. Keats asked his friend the artist, Joseph Severn, to write on his tombstone only the words 'Here lies one whose name was writ in water.'

Glossary: Enlightenment – *illuminismo* aesthetic – *estetico* pain – *dolore* address – *si rivolgono a*
 remarkable – *notevoli* livery – *stallaggio e noleggio di cavalli* unlike – *a differenza di* brave – *coraggioso*
 apprentice surgeon – *chirurgo tirocinante* wealthy – *ricca* operation – *intervento* pattern – *schema*
 nursing – *prendendosi cura di* got engaged – *si fidanzarono* had avoided – *aveva evitato*
 burn up – *consumare* recover – *rimettersi in salute*

6 In 1819 John Keats wrote *Ode on a Grecian Urn*. Read the first stanza of the poem. True or false? Write T or F. Correct the false sentences.

- 1 ___ The speaker says the urn is like a 'historian' who has a story to tell.
- 2 ___ The scenes on the urn are unchanged by time.
- 3 ___ The speaker wants to know what the story is behind the pictures on the urn.
- 4 ___ In lines 8 and 9 some men are chasing animals.
- 5 ___ The scene is set in Athens.
- 6 ___ There are musicians painted on the urn.

7 Write a definition of these literary terms.

metaphor alliteration paradox assonance

8 Read the stanza again and find examples of metaphor, alliteration, paradox and assonance.

Ode on a Grecian Urn

Thou still unravish'd bride of quietness,
 Thou foster-child of silence and slow time,
 Sylvan historian, who canst thus express
 A flowery tale more sweetly than our rhyme:
 What leaf-fring'd legend haunts about thy shape
 Of deities or mortals, or of both,
 In Tempe or the dales of Arcady?
 What men or gods are these? What maidens loth?
 What mad pursuit? What struggle to escape?
 What pipes and timbrels? What wild ecstasy?



Glossary: thou = you still – immobile
 unravish'd – innocent bride – sposa
 foster-child – figlio in affidamento
 sylvan – silvano dei boschi canst = can
 thus = in this way tale – racconto
 leaf-fring'd – decorata con le foglie
 haunts – infesta thy = your dale – valle
 maiden – fanciulla loth – riluttanti
 pursuit – inseguimento
 struggle – lotta pipe – flauto
 timbrel – tamburello wild – selvaggio

What do you think?

- 1 What is your favourite form of art? Why?
- 2 Do you think all art is beautiful? Why?/Why not?
- 3 Have you ever seen a sculpture or painting that tells a story, like the Grecian Urn? Where? What is the story?

MINI-PROJECT

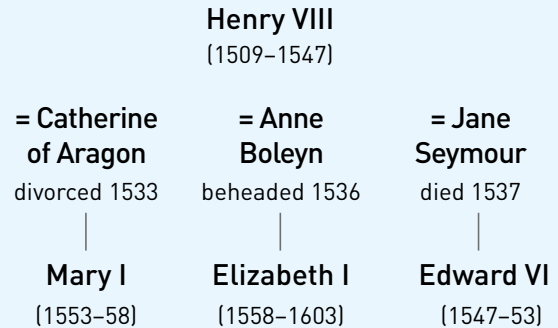
Choose one of the other Romantic poets, or a poet from your own country, and write about him/her.

- Give the main events in his/her life, and indicate what is special about his/her poetry.
- Quote some of the poetry to illustrate your opinions.

Queen Elizabeth I and The Golden Age

- Look at the Tudor Family Tree. Henry VIII had 3 more wives. Can you name them? What do you know about Queen Elizabeth I?
- Match 1–6 to a–f to make sentences about Elizabeth's life.
 - ___ Elizabeth I was born
 - ___ King Henry VIII
 - ___ She became Queen when
 - ___ She never
 - ___ She died
 - ___ Her mother, Anne Boleyn,
 - a she was 25 years old.
 - b in 1603.
 - c married or had children.
 - d in 1533.
 - e was beheaded for treason.
 - f was her father.
- Read the text about Elizabeth I and check your answers to Ex.2.

The Tudor Family Tree



The Virgin Queen

Elizabeth I was born at Greenwich Palace, London on 7th September 1533. She was the daughter of King Henry VIII and his second wife, Anne Boleyn. In 1558, when she was 25 years old, Elizabeth became Queen of England. She was the fifth and last of the Tudor monarchs.



Queen Elizabeth I's reign of 44 years was a time of political and religious stability in England. This was **remarkable** considering she had inherited such a damaged **realm**. Religious conflict between Catholics and Protestants **threatened** the stability of English society. The royal **treasury** was almost bankrupt and even Elizabeth's right to the throne was **in doubt**. Her **troubles** went **beyond** England, with both Spain and France **posing** threats to the security of the realm.

Elizabeth eliminated religious **unrest** and established a secure Protestant Church of England. She was a master politician and her advisement **council** were devoted to her. She **defeated** Prince Philip II of Spain when he sent his Armada to England, and she sent her **armies** to fight against Catholics in Europe and Ireland. She financed voyages of discovery into the New World, where new English colonies were established. Her England became strong, **wealthy**, and influential across the globe.

Elizabeth's strengths and **achievements** weren't limited to politics and discovery. She was a **gifted** scholar, and spoke six languages. She loved dancing and music, and was a very good musician. She was a great leader of fashion. Her clothes were decorated with jewels like diamonds and rubies. She enjoyed watching

and participating in sports. She loved **hunting** and was an excellent horse rider.

Elizabeth was a great patron of the arts and literature. It was during her **reign**, known as The Golden Age, that England experienced its own cultural renaissance. Great English writers, including William Shakespeare and Christopher Marlowe, wrote and performed popular plays and poetry. The Globe Theatre in London opened during her reign in 1599.

Some people refer to her as The Virgin Queen because she never married or had any children. She received numerous offers, but she always declined saying: 'I have already **joined** myself to a husband, namely the kingdom of England.'

Elizabeth I died at Richmond Palace in 1603, aged 69, and was buried in Westminster Abbey, London.

Glossary: remarkable – *notevole* realm – *regno*
 threatened – *minacciava* treasury – *tesoreria*
 in doubt – *in dubbio* troubles – *problemi*
 beyond – *oltre, al di là* posing – *ponevano*
 unrest – *agitazione* council – *consiglio*
 defeated – *sconfisse* armies – *truppe armate*
 wealthy – *ricca* achievement – *successo*
 gifted – *dotata* hunting – *caccia*
 reign – *regno* joined – *unita*

4 Answer the questions.

- 1 How long did Elizabeth's reign last?
- 2 Why was there religious stability during her reign?
- 3 How did the Queen dress?
- 4 Why do you think Elizabeth's reign was known as The Golden Age?
- 5 Why was Elizabeth known as The Virgin Queen?
- 6 Where is Queen Elizabeth buried?

5 Elizabeth's reign was an era of global discovery and exploration. Can you name any famous Elizabethan explorers? What did they achieve?

6 Now read the text about the Age of Exploration. Find the words in the text that mean:

- 1 a person who works on a ship _____
- 2 a collection of valuable things like gold, silver, and jewels _____
- 3 to sail all around the world _____
- 4 a group of ships _____

7 Read the text again. True or False? Write T or F. Correct the false sentences.

- 1 ____ Sir Francis Drake was famous for plundering Spanish ships.
- 2 ____ Drake was the first person to sail around the world.
- 3 ____ Drake played a significant role in defeating the Spanish Armada.
- 4 ____ Drake started the English slave trade.

MINI-PROJECT

Another great Elizabethan explorer and adventurer was Sir Walter Raleigh. Write a short text about his life. Use the Internet to find out more about him. Include the following information:

- his journeys of exploration and 'El Dorado'
- the colonies he founded in the New World
- what he introduced to England
- his poetry and writing
- how he died

The Age of Exploration

During Elizabeth's reign there were many brave explorers whose voyages of discovery laid the foundations for an age of colonization and trade expansion. The most famous of these were Sir Francis Drake and Sir Walter Raleigh.



Sir Francis Drake, a famous English mariner, **slave-trader**, and pirate in the eyes of some, was famous for his attacks against Spain. He captured many Spanish ships, **plundering** treasure such as gold, silver and jewels. In 1577, he was chosen by Elizabeth to circumnavigate the globe and was the first Englishman to do so. He was also the second-in-command when the English defeated the Spanish Armada – a vast fleet of Spanish ships that were trying to invade England – in 1588. The defeat of the Spanish fleet is considered to be one of the most important dates in English history. Drake also played a significant role in England's slave trade and he made slave-trading expeditions to Africa.

Glossary: slave-trader – *trafficante di schiavi*
plundering – *saccheggiando*

The American Revolution

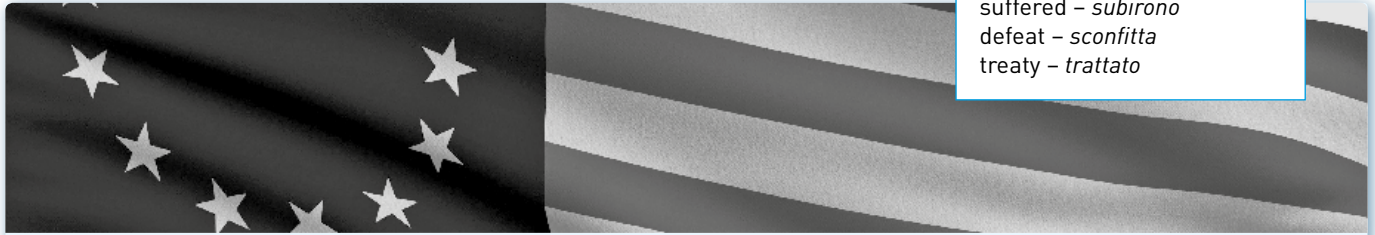
1 How much do you know about the early history of the United States of America? Choose the correct alternative.

- 1 Britain established its first colony in North America in the 17th century/18th century.
- 2 The American War of Independence started in 1775/1785.
- 3 Twelve/thirteen colonies originally formed the United States of America.
- 4 The rebel army was called The American Army/The Continental Army.
- 5 The first American president was Thomas Jefferson/George Washington.

2 Read the text about the American Revolution and check your answers.

Glossary:

established – *fondò*
 several – *diverse*
 rivalry – *rivalità*
 major – *principale*
 expense – *spesa*
 strictly – *severamente*
 unrest – *agitazione*
 signalled – *segnalò, annunciò*
 store – *stoccaggio*
 faced – *affrontarono*
 endowed – *dotati*
 pursuit – *ricerca*
 suffered – *subirono*
 defeat – *sconfitta*
 treaty – *trattato*



Revolution

Britain **established** **several** colonies in North America during the 17th century, starting with Virginia in 1607. A century of **rivalry** between European powers, including England, France, Spain, Austria, and Prussia, culminated in the Seven Years' War (1756–63). After the British victory over the French in the Seven Years' War, Britain became the **major** colonial power in North America.

To help cover the **expense** of defending its North American colonies, the British Government decided to tax its American colonies more **strictly**. The problem for many American colonists was not that taxes were high, but that they were not consulted about them, as they had no representation in Parliament. The growing **unrest** was reflected in the slogan: *No taxation without representation!* and there were lots of political debates about the role of democracy and republican values in society.

In 1773, 'The Boston Tea Party' **signalled** the start of an escalation in protests and violence around the city of Boston. Groups of local militia formed, and in 1775 British soldiers were sent to nearby Lexington to confiscate a **store** of weapons. As the British soldiers **faced** the colonial rebels, the 'shot heard around the world' was fired on April 19th 1775. The American War of Independence had begun.

The thirteen colonies involved formed a provisional government, called 'The United Colonies of America', and formed their own 'Continental Army' under the leadership of George Washington. They declared their independence on July 4th 1776, a date which is still celebrated with a national holiday every year as Independence Day. *The Declaration of Independence*, written by Thomas Jefferson, was influenced by the

Enlightenment philosophy that had come out of Europe, and shows the desire for a new, more egalitarian society. Its opening lines have become famous:

*We hold these truths to be self-evident, that all men are created equal, that they are **endowed** by their Creator with certain inalienable Rights, that among these are Life, Liberty and the **pursuit** of Happiness.*

The British **suffered** some surprise **defeats** at the hands of the Continental Army, but returned to the war with reinforcements. The Americans formed an alliance with France in 1778, and the French helped the Americans with money, weapons, ships, and soldiers. The British, under General Cornwallis, were forced to surrender at Yorktown in 1781. The war formally ended with the **Treaty** of Paris in 1783 and the United States became a sovereign state, with George Washington as its first President.



3 Match the words (1–8) from the text on p.1 to the definitions (a–h).

- | | |
|----------------------|-------------------|
| 1 ___ colonies | 5 ___ inalienable |
| 2 ___ representation | 6 ___ alliance |
| 3 ___ slogan | 7 ___ sovereign |
| 4 ___ militia | 8 ___ surrender |
- a a group of soldiers who are not professional
 b with the power to govern itself
 c can't be taken away
 d stop resisting the enemy
 e countries or areas ruled by more powerful country
 f agreement between two countries to help each other
 g a short easy-to-remember phrase
 h when someone is chosen to speak for the whole group

4 Answer the questions.

- How did the result of the Seven Years' War affect Britain's role in the world?
- What did the slogan 'No taxation without representation' mean? Why was it important?
- What was the result of the British soldiers going to Lexington?
- Who declared their independence on July 4th 1776?
- In what ways is The Declaration of Independence still modern?
- What alliance was made in 1778?
- When did the American War of Independence end?

5 Read the text about George Washington and put the phrases (a–f) in the correct position (1–6).

- a refused to run for a third term
 b American domestic affairs
 c an experienced soldier
 d the capital city of the USA
 e became the first president of the United States
 f important American values and principles

What do you think?

- Is American society today still a more egalitarian society than those in Europe?
- Do you think recent presidents of the United States have followed George Washington's ideas about involvement in international affairs?
- In what ways has America colonized the rest of the world culturally?

MINI-PROJECT

Write a description of the American flag, the Stars and Stripes. Use the Internet to help you. Include the following information:

- the colour and design
- what the stars and stripes represent
- when it was adopted
- how it has changed



George Washington

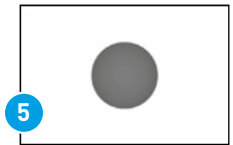
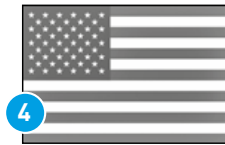
He was born in 1732 in what was then the British colony of Virginia. He was (1) _____ and **led** the Americans to victory in the War of Independence. When the war ended, he (2) _____ from 1789 to 1797, the only president ever to receive 100% of the electoral votes. He refused the offer of a **salary** of \$25,000 a year, saying that he wanted only to be a **selfless public servant**, but later accepted it when he was persuaded that the American presidency must be open to all citizens, not just those who could **afford** to do the job for free. He served two **terms** as president, but (3) _____, establishing the policy that exists today of allowing a maximum of two terms in office for any president.

Washington **laid the foundations** of many (4) _____. He wanted to respect the republican ideals associated with the founding of the American nation, and he did not copy the power-hungry European royal courts, refusing to be addressed as anything more **majestic** than 'Mr. President'. He thought the United States should concentrate on American interests. He **made sure** that America did not interfere in European politics and that other countries didn't influence (5) _____. Washington DC, (6) _____, is named in his honour.

Glossary: run – *candidarsi*
 led – *guidò* salary – *stipendio*
 selfless – *altruista*
 public servant – *dipendente pubblico*
 afford – *permettersi* term – *mandato*
 laid the foundations – *gettò le basi*
 majestic – *maestoso*
 made sure – *fece in modo che*

The G8

- 1 Name the countries which the 5 flags represent. Which of these 5 countries is not a member of the G8?



- 2 How much do you know about the G8? Choose the correct alternative.

- 1 G8 stands for the Group of Eight/Group Eight.
- 2 The G8 countries make up approximately 65%/85% of the Gross World Product.
- 3 The G8 meetings are called **summits**/conventions.
- 4 The G8 started in 1975 as the G5/G6.
- 5 The original members were France, Germany, Japan, the US, the UK and Italy/Spain.
- 6 It became the G7 when Canada/Russia joined in 1976.
- 7 It became the G8 when Canada/Russia joined in 1997.

- 2 Read the text about the G8 and check your answers.

G8

The Group of Eight, or G8 as it is more commonly known, is an international forum for the governments of Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and the United States. Together, these countries make up approximately 65% of the Gross World Product.

The idea of a forum for the world's **major** industrialized countries came out of the 1973 oil crisis and global recession. In 1974, the United States created the Library Group, an informal **gathering** of senior officials from the Ministries of Finance of the US, the UK, Germany, Japan, Italy, and France. The next year, the French President, Valéry Giscard d'Estaing, organized a meeting for the heads of government from these six countries. The six leaders agreed to an annual meeting or summit, and formed the 'Group of Six' (G6). These summits would allow leaders to talk directly to each other about shared problems, without all the usual bureaucracy and media attention of a big meeting. In 1976, Canada joined and the group became the Group of Seven, or G7.

At the 1994 Summit in Naples, Russian officials held meetings with the leaders of the G7 and Russia formally joined the group in 1997, resulting in the Group of Eight or G8. There is a 'ninth member' of the G8, the European Union.

The aims of the G8 are to **boost** cooperation over **trade** and finance; to **strengthen** the global economy; to promote peace and democracy; and to prevent and resolve conflict.

Other important countries with fast growing economies are invited to attend the G8 meetings. These countries are Brazil, China, India, Mexico, and South Africa, and they are known as the Outreach Five (O5) or the Plus Five. The O5 make up approximately 11% of the Gross World Product, which is

relatively small compared to that of the G8. However, they make up approximately 42% of the world's population, compared to 13% in the G8 countries, so their **involvement** is essential when discussing global **issues** such as climate change.

Every year, the presidency and responsibility of hosting the G8 summit rotates through the member states. The **holder** of the presidency sets the agenda, and hosts the summit for that year. The summits are often a target for anti-globalization protests and now take place behind very high security. The G8 members can agree on plans and set objectives. Although these plans and objectives are not **legally binding** for any of the countries involved, governments can, and often do, comply with them.

Glossary: major – *principali* gathering – *riunione* boost – *migliorare*
trade – *commercio* strengthen – *rafforzare* involvement – *partecipazione*
issue – *problema* holder – *il detentore della carica di* legally binding – *legalmente vincolanti*

3 Match the underlined words and phrases from the text on p.1 to the definitions (1–8).

- 1 the monetary value of the total annual goods and services in the world _____
- 2 invites leaders to their country for an important meeting _____
- 3 action against corporations which are operating internationally _____
- 4 the period when business and industry throughout the world is not successful _____
- 5 to agree on a result you try to achieve _____
- 6 a meeting where people from different countries can discuss ideas _____
- 7 important people in government or organizations _____
- 8 the administration of rules made by the government _____

4 Answer the questions.

- 1 What was the Library Group?
- 2 Who is the 'ninth member' of the G8?
- 3 What are the main aims of the G8?
- 4 Who are the Outreach Five?
- 5 Who hosts the G8 summits?
- 6 Why is security a priority at the G8 summits?
- 7 Are G8 decisions legally binding?

5 Read the profile of the UK, one of the G8 countries and complete the text with information from the table.

What do you think?

- 1 Imagine you are hosting the G8 summit. Put these issues in order of importance (1–5) for the agenda.
 - ___ Peace in the Middle East
 - ___ Aid for the developing world, e.g. debt relief
 - ___ Reconstructing Iraq
 - ___ Global warming
 - ___ Dealing with international terrorism

MINI-PROJECT

Choose another G8 country and write a short text about it similar to the one on the UK.

The United Kingdom



Location	Western Europe
Population	63,000,000 (approx.)
Capital	London
Government	Constitutional monarchy
Currency	British pound (GBP)
GDP	\$2.29 trillion (2011 est.)
GDP – per capita (PPP)	\$36,600 (2011 est.)
Public debt	83.6% of GDP (2011 est.)
Agriculture – products	cereals, oilseed , potatoes, vegetables, cattle , sheep, poultry , fish
Industries	heavy industry, including shipbuilding, aircraft and car manufacturing, information technology, petrochemicals, food processing

The UK is a group of islands off Western Europe. It consists of England, Scotland, Wales, and Northern Ireland. It has a population of over ¹_____, of whom over 50,000,000 live in England. The capital city is ²_____, and it is a parliamentary democracy with a ³_____ monarchy. Although a member of the European Union, the currency is not the euro, it is the British ⁴_____.

In 2011, its GDP (Gross Domestic Product) was ⁵_____, and in the same year the average income per capita was ⁶_____ per annum. The public debt was approximately 83.6% of the GDP.

Its agricultural products are: ⁷_____, oilseed, potatoes, vegetables; cattle, sheep, poultry; ⁸_____. Its industrial products are heavy ⁹_____, including shipbuilding, aircraft and car ¹⁰_____, information technology, petrochemicals and food processing.

Glossary: currency – *moneta* oilseed – *semi oleosi*
cattle – *bovini* poultry – *pollame*

Petroleum

- Which of these things do you think are made from petroleum?
- Read the text about petroleum. What does the writer mean by the text's title *The bottom of the barrel*?



2 Lipstick



Petroleum – The bottom of the barrel?

Petroleum has been used in one form or another for thousands of years. In ancient times, people used it in construction and for medicinal and **lighting** purposes. Records show the Chinese **drilled** the first **oil wells** in the 4th century AD, or possibly earlier. However, it is only relatively recently that oil has become the world's most important **fuel**. It is now the subject of much global discussion and conflict.

The world is now producing around 87 million barrels of oil a day. The biggest oil-producing countries are: Russia, Saudi Arabia, and the USA. Approximately 90% of the world's transport depends on oil, not to mention all the other things we use oil for, including plastics, pesticides, and pharmaceuticals.

Some experts believe oil production could **peak** within the next five years, after which there will be a **decline** in supply. Worldwide demand for oil may **outstrip** supply so the price of oil could **rise** dramatically, which would greatly affect our everyday lives.

We wouldn't be able to **afford** to drive our cars, take cheap flights or heat our houses, and the rising cost of transporting food would **push up** food prices.

People are looking for alternative forms of energy, for example, **biofuels**. However, these are not without negative consequences. In countries like Brazil, the **rainforests** are being destroyed at an alarming rate to make way for biofuel **crops**. As more crops are grown to provide biofuels, fewer are available for food, again pushing up food prices.

We need to start planning for the post-oil age and looking for realistic energy alternatives. What are these alternatives and how can we survive without oil? It is difficult to tell. Life will certainly be different, but in the past we have managed without oil, and we may have to manage again.

Glossary: lighting – *illuminazione* drilled – *trivellarono*
fuel – *combustibile* rise – *aumentare* push up – *far alzare*
rainforest – *foresta pluviale* crops – *colture*

- Match the underlined words or phrases from the text to the definitions (1–6).

- to reach the highest point or value _____
- to have enough money to be able to buy or do something _____
- a continuous decrease in the number, quantity, or value of something _____
- to be greater than or overtake _____
- holes that are made deep in the ground or under the sea in order to obtain oil _____
- mineral oils that are produced by living matter, such as plants or waste matter from animals _____

- Answer the questions.

- Who drilled the first oil wells?
- What do some experts think may happen within the next five years?
- What might happen to the demand and supply of oil after that?
- How would the high price of oil affect our everyday lives?
- What are two of the disadvantages of biofuels?



5 Read the first part of the text about biofuels *What are biofuels?* and answer the questions.

- 1 What can be used to make biofuels?
- 2 What is the main difference between ethanol and biodiesel?

6 Now read *Biofuels: the solution to a post-oil age?* and put the words and phrases (a–h) in the correct position (1–8).

- a reducing global warming
- b deforestation
- c an alternative
- d and so less goes to make food
- e algae
- f increase in demand
- g petroleum
- h famine

What do you think?

- 1 What alternative forms of energy can you think of?
- 2 Which do you think would be the best alternative to oil?

MINI-PROJECT

In the USA, the average item of food is transported almost 2,500 km before it gets to the consumer. A locavore is someone who eats food grown or produced locally. Find out more using the Internet, and write a short text about the locavore movement. Include the following information:

- the definition of a locavore and the origin of the word 'locavore'
- examples of where the food you eat comes from and how far it has been transported
- the advantages and disadvantages of being a locavore

Glossary: matter – *materia*
 starch – *amido* waste – *di scarto*
 famine – *carestia*
 instead of – *invece di*
 rate – *velocità* grain – *cereali*
 oilseed – *semi oleosi*
 wheat – *grano*

What are biofuels?

Biofuels are renewable fuels which are made from biological **matter**. They can be used to substitute or supplement traditional petroleum-based transport fuels. They can also be used for heating and electricity production. The two most common kinds of liquid biofuels are ethanol and biodiesel. Ethanol is made by fermenting the sugar or **starch** found in plants such as sugar cane or maize. Biodiesel is made from plant oils like soya bean, coconut, and palm. **Waste** cooking oil can also be converted to biodiesel.



Biofuels: the solution to a post-oil age?

In recent years many governments and environmentalists have been very enthusiastic about the use of biofuels as ¹ _____ to petroleum-based fuels. As a result, investment in biofuels has risen significantly.

However, this recent expansion of the biofuel market has highlighted two extremely worrying problems. **Instead of** ² _____ by reducing our dependence on petroleum-based fuel, it has actually caused a dramatic increase. Biofuels create more demand for crops, raising prices and causing agricultural expansion. Farmers want to grow as much of these crops as possible, which has caused an ³ _____ for land. Consequently, land such as the Amazon rainforest in Brazil is being destroyed at an even faster **rate** than before. Studies have shown that, when ⁴ _____ is taken into account, biofuels, like corn ethanol and soya biodiesel, produce about twice the carbon emissions of ⁵ _____-based fuels.

The other main problem with biofuels is that the world's **grain** and **oilseed** crop are used make biofuels, ⁶ _____. World food prices are rising fast. Many people fear this will result in ⁷ _____ in poorer countries, where people can't afford basic foods, such as **wheat** and rice.

More research is being done into biofuels that do not require use of agricultural land currently used for food production, such as ⁸ _____, which survive in waste water. At present, however, it is clear that biofuels are not part of the solution to global warming, but part of the problem.

Enzymes

- 1 Which of these things are made using catalysts or enzymes?
Can you think of any other examples?



1 Beer



2 Wine



3 Baby food



4 Washing powder



5 Yoghurt

- 2 Read the text on p.2 *Enzymes – nature's catalysts*, and check your answers to Ex.1.

- 3 Match the words in the text (1–5) to the definitions (a–e).

- 1 ___ speed up
- 2 ___ use up
- 3 ___ organic
- 4 ___ side-effect
- 5 ___ alter

- a consume completely so there is nothing left
- b to go, or make something go, faster
- c change, modify
- d an unexpected, and usually undesirable, effect when something is used
- e something produced from living things

- 4 Answer the questions.

- 1 What is a catalyst?
- 2 Why are catalysts important in industry?
- 3 What is an enzyme?
- 4 What are two examples of how human beings and animals use enzymes?
- 5 How are enzymes different from inorganic catalysts?
- 6 Name some domestic and industrial uses of enzymes.

- 5 Now read the text on p.2 *Enzymes and biological washing powders*. True or False? Write T or F. Correct the false sentences.

- 1 ___ Washing powders and detergents always contain enzymes.
- 2 ___ Subtilisin is a protease found in biological washing powders.
- 3 ___ Lipase and cellulase remove fat-based stains.
- 4 ___ Enzymes only work at high temperatures.
- 5 ___ Enzymes help protect the environment.

What do you think?

- 1 Packets of washing powder carry the warning that it is an irritant and should be washed off the skin at once. Why do you think washing powder can be a skin irritant?

MINI-PROJECT

The Haber or Haber-Bosch process uses a catalyst. Write a short text describing this process. Use the Internet and/or chemistry books to help you. Include the following information:

- who invented the Haber process
- why it is used in industry
- which catalyst is used in the process
- why it is so important

Enzymes – nature's catalysts

A catalyst is any substance that speeds up the **rate** of a chemical reaction, without being used up or changed itself. Catalysts can be organic, synthetic or metallic. Catalysts are often used in industry as they speed up the production process, and therefore reduce costs so that products can be made more efficiently.

Biological catalysts are called enzymes. They are large protein molecules. They are essential in many industrial production processes. Human beings and other animals use enzymes too. The digestion of food and the release of energy for movement are two examples of the many natural processes that depend on enzymes. In the same way as inorganic catalysts, enzymes speed up chemical reactions without being used up themselves and they can be used repeatedly. Enzymes are different from inorganic catalysts in the following ways:

- 1 They have higher reaction rates.
- 2 They have greater reaction specificity (fewer side-effects).
- 3 They are easy to control – altering the concentrations of substances can vary the catalytic activity of an enzyme.

Enzymes work best in warm conditions and, if it is too cold, they quickly stop working.

Enzymes as catalysts are used in many different domestic situations including bread making, **brewing**, yoghurt making, and also in biological detergents. Industrial uses include enzymes that **break down** proteins (proteases) such as those used in the production of some baby foods, and enzymes that break down starch into sugar (carbohydrases) such as those used in **soft-centred** chocolates.

Glossary: rate – *velocità* brewing – *produzione della birra*
break down – *scompongo* soft-centred – *ripieni*

Enzymes and biological washing powders



Biological **washing powders** contain enzymes and non-biological detergents do not. Enzymes help break down the **dirt** and **stains** on clothes. Most biological washing powders contain a protease called subtilisin, which breaks down proteins and removes protein stains, such as **blood** and egg. Different forms of subtilisin are added to washing powders, depending on the temperature of the wash they are to be used at. Modern biological washing powders also contain an amylase which digests **starch**-based stains and a lipase to digest fat-based stains. The most recent powders also contain cellulase, which is an enzyme that breaks down cellulose to 'condition' the **fabric**. This is very useful as it protects the fabric from the effects of **wear**.

Enzymes can remove stains at low temperatures, which means you use less energy and save money!

Glossary: washing powder – *detersivo (da bucato)*
dirt – *sporco* stain – *macchia* blood – *sangue*
starch – *amido* fabric – *tessuto* wear – *consumo, uso*

DNA and Genetic Engineering

- 1 Do you look like your parents? Which characteristics do you think you inherited from them?
- 2 Look at the title of the text and the picture. Why do you think the writer describes DNA as 'a very large molecule'? Now read the text and check your answer.

DNA – a very 'large' molecule

From the beginning of time, humanity has wondered how certain characteristics could be passed on from one generation to another. Deoxyribonucleic acid (DNA), the material which programmes many of our physical and psychological traits, was first identified in 1869 by the Swiss scientist Friedrich Meischer. But it was not until 1953 that the molecular structure and distinctive double helix shape of DNA was known. Discovered by Francis Crick and James Watson, this was the real breakthrough that has made advances in molecular biology possible.

DNA is the best known of a series of acids called nucleic acids. These acids are **made up of** smaller nucleotide molecules. A nucleotide has three parts:

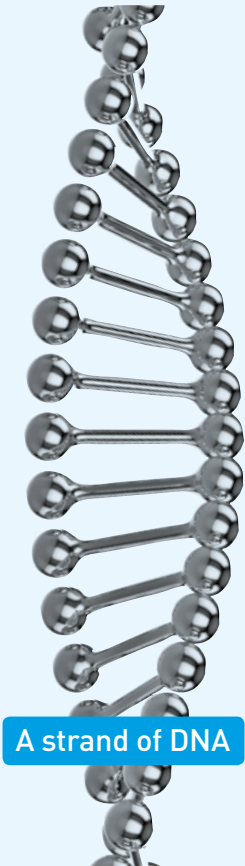
- a sugar molecule
- a phosphate group
- a base containing nitrogen

There are four types of base: adenine, guanine, thymine, and cytosine. These are sometimes abbreviated to A, G, T, and C. It is the bases that contain hereditary information. A series of nucleotides is called a polynucleotide **chain**. DNA consists of two of these polynucleotide chains.

The interconnections between these two chains, which keep them together, are hydrogen **bonds**. The two interconnected chains form themselves into the shape of a double helix.

Chromosomes are the biological **carriers** of hereditary information. DNA is stored in chromosomes in the nucleus of cells. Inside human cells there are 46 pairs of chromosomes, 23 pairs supplied by each parent.

Crick and Watson's discovery marked the arrival of molecular biology and genetic engineering, and the modern day uses of DNA in industry, medicine, solving crime and agriculture.



A strand of DNA

Glossary:

has wondered – *si è domandata*
 helix – *elica*
 made up of – *composti di*
 chain – *catena*
 bond – *legame*
 carrier – *portatore*

3 Match the words from in the text (1–5) to the definitions (a–e).

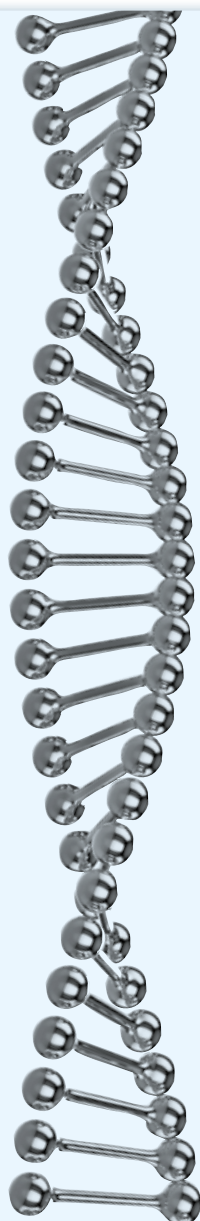
- | | |
|--------------------|---|
| 1 ___ molecule | a genetically transmitted or passed on |
| 2 ___ traits | b the tiny structures in the cell nucleus that carry biological information |
| 3 ___ breakthrough | c the smallest part of a chemical compound |
| 4 ___ hereditary | d a sudden important discovery or development |
| 5 ___ chromosome | e a genetically-determined characteristic |

4 Answer the questions.

- 1 What does DNA stand for?
- 2 What did Crick and Watson discover in 1953?
- 3 What function do A, G, T, and C have?
- 4 What do chromosomes do?
- 5 How is Crick and Watson's discovery used today?

5 Read and complete the text about genetically modified crops with the words from the box. Write them in the correct spaces (1–7).

chemicals nutritional plants molecule nature process grow



Genetically modified crops

Genetic engineering is the ¹ _____ in which genes are modified artificially by being taken from one organism and inserted into the cells of another. Today, the agricultural industry in some countries uses genetic engineering to genetically modify **crops** (GM crops) and animals. These are animals and ² _____ that have had their genetic **make-up** changed by scientists adding another gene from a different living creature. This creates modified organisms that might never evolve in ³ _____.

GM crops are made for many different **purposes**, the main one being to develop crop or animal varieties able to survive without the use of **harmful** ⁴ _____ like pesticides.

In addition, supermarkets can sell food more cheaply, because tomatoes and other fruits and vegetables can be genetically engineered to stay fresh **longer**. Plants can be developed which can ⁵ _____ in poor weather and **soil** conditions. This could help people grow food in developing countries where extreme climate conditions often make this difficult.

Some people think that GM crops **damage** human health by causing allergies, and that it is **unethical** for scientists to experiment with the **taste**, quality, and appearance of food. People are also worried about the ⁶ _____ quality of genetically modified food. One thing is certain – whether you agree with them or not, the discovery of a tiny ⁷ _____ called DNA made it all possible!

Glossary: crop – *coltura*
make-up – *composizione*
purpose – *scopo*
harmful – *nocivi*
longer – *più a lungo*
soil – *terreno*
damage – *nuoce*
unethical – *immorale*
taste – *sapore*

6 Answer the questions.

- 1 What is genetic engineering?
- 2 What are genetically modified crops?
- 3 List some advantages and disadvantages of genetically modified crops.

What do you think?

- 1 Would you buy or eat genetically modified food? Why?/Why not?

MINI-PROJECT

James Watson directed the Human Genome Project. Write a short text about the Human Genome Project. Include the following information:

- which countries were involved
- its goals
- what the project was about
- its outcomes

John Constable

- 1** Which countries are these 4 artists from? Who painted which masterpiece?

Constable Goya Munch Degas

- 1 *La classe de danse (The Dance Class)* _____
- 2 *Der Schrei der Natur (The Scream)* _____
- 3 *The Hay Wain* _____
- 4 *Los Fusilamientos del 3 de Mayo 1808 (The Shootings of the Third of May 1808)* _____

Have you seen any of these paintings? If so, which ones and where?

- 2** How much do you know about the artist John Constable? True or False? Write T or F.

- 1 ____ John Constable is a famous artist from the 19th century.
- 2 ____ He is famous for his still life paintings.
- 3 ____ He had six children who he brought up himself.
- 4 ____ He was rich during his lifetime.
- 5 ____ In his lifetime his works of art sold well, especially in England.

- 3** Read the biography of John Constable on p.2 and check your answers to Ex.2. Then correct the false sentences.

- 4** Match the words from the text (1–6) to the definitions (a–f).

- 1 ____ landscape
- 2 ____ exhibit
- 3 ____ approach
- 4 ____ sketch
- 5 ____ prestigious
- 6 ____ influence

- a a way of painting, acting, teaching, etc.
- b a painting showing rural scenery
- c important, respected, and admired
- d having an effect on someone or something
- e to show work in public
- f to make a simple, quick drawing, without much detail

- 5** Answer the questions.

- 1 What future did Constable's father want for him?
- 2 When did he sell his first important painting?
- 3 What were Constable's views on painting?
- 4 When was he finally made a member of the Royal Academy?
- 5 Which painters did Constable influence?

- 6** Complete the description of *The Hay Wain* on p.2 with the words in the box.

distance exhibited collector awarded
returned rural life foreground

What do you think?

Constable painted scenes of the English countryside which were very true to life. Most other 18th century landscape artists chose to paint more romantic images of wild landscapes and ruins. Constable said that 'Fashion always had, and will have its day – but Truth (in all things) only will last and can have just claims on posterity.'

- 1 What do you think he meant by this?
- 2 Do you agree or disagree? Why?

MINI-PROJECT

Write a brief description of another famous landscape painting. Find out more using the Internet. Include the following information:

- the subject of the painting
- the style in which it was painted
- how it compares to Constable's landscapes

*'Painting is but
another word for feeling'*

John Constable



John Constable

Born in 1776 in Suffolk, in the east of England, John Constable was a famous English landscape painter. His name is now synonymous with the area of the English countryside around his home, often called 'Constable Country'. His most famous paintings include *Dedham Vale* (1802) and *The Hay Wain* (1821).

His father was a rich **merchant**, who hoped that John would follow him into the family business. But from a very early age, John showed a great interest in painting and was determined to become a professional artist. He persuaded his father to let him study art at the Royal Academy Schools in London.

In 1816 John married Maria Bicknell, and they had seven children together. He sold his first **masterpiece** in 1819, *The White Horse*. He exhibited his first paintings the same year. Following his wife's death in 1828, he never remarried and found it difficult to look after his seven children alone.

Glossary: merchant – *commerciante*
masterpiece – *capolavoro* decades – *decenni*
fashionable – *alla moda* seeking – *cercando*
rated – *stimati* very valuable – *di grande valore*

Decades before the Impressionist movement, Constable painted ordinary, everyday scenes which were not **fashionable** in that period. He rejected the classical, formal approach to landscape painting of the 18th century, because he felt that those who painted in this style were 'running after pictures and **seeking** truth at second hand'. He was fascinated by the effects of changing light. Unlike other artists of his time, he sketched and painted in the open air to capture these changes. Today these sketches are as highly **rated** as his finished paintings.

Although Constable's paintings are now **very valuable**, during his lifetime he was never financially successful. He only became a member of the Royal Academy of Arts, London – one of the most prestigious art institutions of its time – when he was 52. Although he refused to travel abroad, he was a major influence on French Romantic painters such as Eugène Delacroix. In fact, during his lifetime, he sold more paintings in France than he did in England. He died in 1837, and was buried alongside his wife in the family tomb in Hampstead, London.

The Hay Wain

The Hay Wain (1821) is one of Constable's best known scenes of ¹_____. In the ²_____ of the painting, a hay wain, or large **wagon** with horses, is standing in the River Stour, near Flatford Mill in Suffolk. The mill cottage is on the left **bank** of the river. Across the **meadow**, in the ³_____



on the right, a group of **haymakers** is at work. In the **background** are the clouds and trees Constable was so famous for.

The painting was ⁴_____ at the Royal Academy in 1821, under the title *Landscape – Noon*, but no one wanted to buy it. Constable sold the painting to a French **art dealer**, and in 1825 when it was exhibited in France, King Charles X of France ⁵_____ it a Gold Medal. In 1838, a private art ⁶_____ bought *The Hay Wain* and ⁷_____ it to England. It is now on permanent exhibition in the National Gallery in London.

Today, the cottage and river path in Flatford have hardly changed from Constable's time and the town is now on the tourism map because *The Hay Wain* is one of the most famous and iconic English paintings of all time.

Glossary: awarded – *conferito* foreground – *primo piano*
wagon – *carro* mill – *mulino* bank – *argine*
meadow – *prato* haymakers – *falciatori di fieno*
background – *sfondo* art dealer – *mercante d'arte*

Two British Philosophers

- 1 Match these philosophers (1–3) to their famous works (a–c).**
What other philosophers do you know? What were their ideas?

- | | |
|----------------------|-------------------------------------|
| 1 ____ Thomas Hobbes | a <i>The Wealth of Nations</i> |
| 2 ____ Adam Smith | b <i>A Treatise of Human Nature</i> |
| 3 ____ David Hume | c <i>Leviathan</i> |

- 2 Read the biographies on p.2 of two British philosophers.**
Complete the table with brief notes about each philosopher.

	Biographical details	Ideas and works
A Thomas Hobbes		
B David Hume		

- 3 What do these dates in the texts refer to?**

- a 1642 b 1651 c 1734 d 1779

- 4 Match the words and phrases from the texts (1–6) to the definitions (a–f).**

- | | |
|---------------------------|--|
| A 1 ____ hypotheses | a a general feeling of doubt about something;
a feeling that you are not likely to believe something. |
| 2 ____ absolute authority | b the use of experiments or experience as the basis
for your ideas; the belief in these methods |
| 3 ____ controversies | c suppositions used as the basis for further
investigation |
| B 4 ____ scepticism | d shows clear and sensible thinking |
| 5 ____ empiricism | e total control over everything with the power and
right to give orders and make others obey |
| 6 ____ rational | f topics which people have strong feelings about |

What do you think?

In his book *Leviathan*, Hobbes stated that people were naturally guided by self-interest and would fight each other in order to better their positions. As a result, he believed in a very authoritarian version of the social contract, with a government which had absolute power over everything in people's lives.

- Do you think Hobbes was right? Why?/Why not?
- Do you think governments have too much or not enough control?
Give examples to explain your answers.

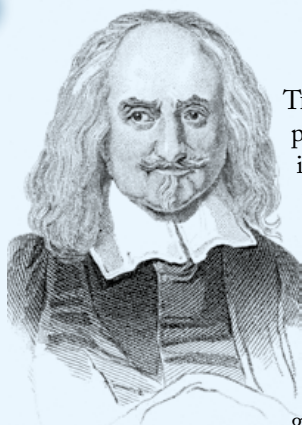
MINI-PROJECT

Write a short biography of Adam Smith, another British philosopher and pioneering political economist. Find out about his life and works using the Internet, and history or philosophy books. Include the following information:

- where and when he was born
- his education
- his main philosophical thoughts
- famous works
- when he died

A

THOMAS HOBBES



THOMAS HOBBES was an English philosopher born in 1588. His ideas marked the end of medieval thinking and the beginning of modern philosophical and political theory. One of his main hypotheses was that human beings can live together in peace, **avoiding** civil conflict, but only if there is an **effective** government with absolute authority.

Hobbes studied at Oxford University. After finishing his degree in 1608, Hobbes became tutor to several wealthy families, which meant that he moved in influential political circles.

Hobbes lived in a time of great change in England, during the English Civil Wars of 1642–46 and 1648–51 between the Royalists, the people loyal to King Charles I, and the Parliamentarians, who were supporters of Parliament and Oliver Cromwell. This encouraged his political belief in **absolutism**

and the necessity of political stability. He moved to Paris, in **self-imposed exile**, at this time because of his Royalist sympathies.

Hobbes's most famous work *Leviathan*, written in 1651, explained his theory of civil government in relation to the political crisis. He took a pessimistic **view** of human nature: that it is natural for us to **act** in our own **self-interest**. As a result, he believed that the state must have total control over the lives of its citizens. This was the only way to protect and secure their liberty. This '**social contract theory**' suggests that both the state and the citizen have moral obligations to each other. *Leviathan* helped **establish** the foundation for most Western political philosophy.

Hobbes returned to England in the same year as *Leviathan* was published. He was at the centre of political and religious controversies for the rest of his life. Many saw his ideas as dangerous and **atheist**. His commonwealth seemed to be organized without the need for God. At times, King Charles II had to protect him from his political enemies. Hobbes died in 1679.

'... all that is real is material, and what is not material is not real ...'

Glossary: avoiding – *evitando* effective – *efficace* absolutism – *assolutismo*
self-imposed exile – *esilio autoimposto* view – *opinione* act – *agire* self-interest – *interesse personale*
social contract theory – *contrattualismo* establish – *stabilire* atheist – *atee*

B

DAVID HUME



DAVID HUME was born in Edinburgh, Scotland in 1711. A contemporary and friend of Adam Smith, he was perhaps the most important philosopher of the British **Enlightenment**. He influenced men like Immanuel Kant and Charles Darwin. A philosopher, historian, and economist, he was

responsible for much of the modern development of scepticism and empiricism. He defined moral philosophy as 'the science of human nature'. According to Hume, we rarely have rational justification for the things we **claim** as **knowledge** is actually based on custom or habit. He believed knowledge comes to a person exclusively through experience.

Hume's father died when he was two and he was educated at home, before going to study at Edinburgh University when he was still very young. After university, he went to Bristol to work in commerce, and then travelled to France in 1734, where he read the works of great European philosophers such as René Descartes. While he was there, he wrote the first **draft** of one of his most famous works, *A Treatise of Human Nature* (1739–40) on the formation of **belief**. It took him four years to write, but it was not particularly successful when it was published. He wrote other important works on moral philosophy and on economics. The controversial and atheist *Dialogues Concerning Natural Religion* (1779) was published after his death. During his lifetime, Hume was better known as an historian, and his work *The History of Britain* was published in six volumes between 1754 and 1762. Hume applied for positions at the universities of Edinburgh and Glasgow, but was refused because of his reputation as an atheist. He died in Scotland in 1776.

'Truth springs from argument amongst friends'

Glossary: Enlightenment – *Illuminismo* claim – *dichiariamo*
knowledge – *conoscenza* draft – *stesura* belief – *convinzioni* springs – *nasce*